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| 10/706,196  | 11/12/2003  | Gary Wentworth       | 27702/38512         | 5990             |
| 4743  | 7590        | 02/17/2006           | EXAMINER            |                  |
| MARSHALL, GERSTEIN & BORUN LLP<br>233 S. WACKER DRIVE, SUITE 6300<br>SEARS TOWER<br>CHICAGO, IL 60606 |             |                      | POULOS, SANDRA K    |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 1714                |                  |

DATE MAILED: 02/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/706,196

Applicant(s)

WENTWORTH ET AL.

Examiner

Sandra K. Poulos

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-58 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/30/04;9/13/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

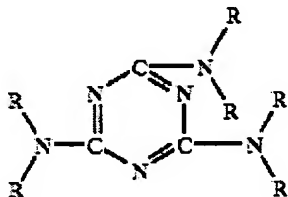
### *Specification*

1. The abstract of the disclosure is objected to because of legal phraseology "comprising". Examiner suggests replacing with "including" or "containing." Correction is required. See MPEP § 608.01(b).

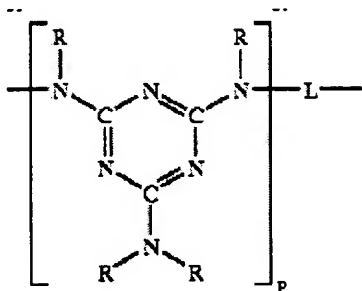
### *Claim Objections*

2. Claims 6-13, 18, 20, 22 and 35 are objected to because of the following informalities:
  - a. Claim 6-9, 11, and 12: The term "on average" is objected to. For example, at the top of page 40, the term "on average" in the phrase "on average, at least two" is unclear because it's not known if the if R must be two or more  $-\text{CH}_2\text{-R}^1$  or if R is sometimes only one  $-\text{CH}_2\text{-R}^1$ .
  - b. Claim 10: There is no period at the end of claim 10. Examiner suggests the following format:

"10. The composition of claim 9, wherein the adhesive resin is a compound of the formula:



(V), or



(VI)."

- c. Claim 13: The parentheses in claim 13 are improper.
  - d. Claim 18: Formula (I) is already defined as a different chemical in claim 1 and should not be re-used to define a different chemical in dependent claim 18. R<sup>1</sup> was also previously defined in claim 1.
  - e. Claims 20 and 22: R<sup>1</sup> was previously defined in claim 1 and the R<sup>1</sup> in claims 20 and 22 are drawn to a different chemical.
  - f. Claim 35 contains CAS# of the dimer, which is improper. Please replace with the name of the compound intended.
- Appropriate correction is required.

### ***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Five (5) obviousness-type double patenting rejections are set forth below.

*Double Patenting, I*

4. Claims 1-42, 45-54, and 57-58 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-49 of US Patent 6,858,664. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

US 6,858,664 discloses a composition comprising rubber, adhesive resin, and esters of the formulae in claim 1. The adhesive resin is further specified using the formulae in the dependent claims.

The differences between the present claims and the claims of US 6,858,664 are (1) the present claims refer to "thermoplastic polymers" or "thermoplastic polymer alloys" while the claims of US 6,858,664 refer to "rubber", (2) the claims of US 6,858,664 do not refer to calcium silicate, and (3) the claims of US 6,858,664 do not disclose that the temperature is sufficient to melt the polymer.

Applicant's attention is drawn to M.P.E.P. § 804 where it is disclosed that "the specification can always be used as a dictionary to learn the meaning of a term in a patent claim." *In re Boylan*, 392 F. 2d 1017, 157 USPQ 370 (CCPA 1968). Further, those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in an

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application defines an obvious variation of an invention claimed in the patent. *In re Vogel*, 422 F. 2d 438, 164 USPQ 619, 622 (CCPA 1970).

With respect to (1), the specification of US 6,858,664 discloses that rubbers include styrene-butadiene rubbers (col 16, lines 38-67). Applicant's present specification defines styrene-butadiene copolymers as "thermoplastic polymers" (page 21-22), therefore it would have been obvious that the rubber in the claims of US 6,858,664 would have included overlapping compounds with the presently claimed "thermoplastic polymer" and thus, one of ordinary skill in the art would have arrived at the claimed invention.

With respect to (2), the specification of US 6,858,664 also discloses that typically, adhesion promoters are mixed with a dry carrier, such as calcium silicate, to form an alternative delivery system, which can be incorporated into natural and/or synthetic rubber (col 4, lines 58-67). It would have been obvious to one of ordinary skill in the art that calcium silicate was an additional component of the given composition because calcium silicate is a typical carrier used in the compositions in the specification.

With respect to (3), the polymer would have intrinsically been heated to the melting point because the composition is adhered to the cords or coated on various substrates and would have been in an at least somewhat liquid state in order to do so. Therefore it would have been obvious to one of ordinary skill in the art that the polymer at some point during the processing was melted.

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5. Claims 1-42, 45-54, and 57-58 are directed to an invention not patentably distinct from claims 1-49 of commonly assigned US 6,858,664. Specifically, although the conflicting claims are not identical, they are not patentably distinct for the reasons set forth in paragraph 4 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned US 6,858,664 discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

*Double Patenting, II*

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6. Claims 1-42, 45-54, and 57-58 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-52 of US Patent 6,969,737. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

US 6,969,737 discloses a composition comprising rubber, adhesive resin, and esters of the formulae in claim 1. The adhesive resin is further specified using the formulae in the dependent claims.

The differences between the present claims and the claims of US 6,969,737 are (1) the present claims refer to “thermoplastic polymers” or “thermoplastic polymer alloys” while the claims of US 6,969,737 refer to “rubber”, and (2) the claims of US 6,969,737 do not disclose that the temperature is sufficient to melt the polymer.

Applicant's attention is drawn to M.P.E.P. § 804 where it is disclosed that “the specification can always be used as a dictionary to learn the meaning of a term in a patent claim.” *In re Boylan*, 392 F. 2d 1017, 157 USPQ 370 (CCPA 1968). Further, those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in the patent. *In re Vogel*, 422 F. 2d 438, 164 USPQ 619, 622 (CCPA 1970).

With respect to (1), the specification of US 6,969,737 discloses that rubbers include styrene-butadiene rubbers (col 15, lines 3-34). Applicant's present specification defines styrene-butadiene copolymers as “thermoplastic polymers” (page 21-22), therefore it would have been obvious that the rubber in the claims of US 6,969,737



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would have included overlapping compounds with the presently claimed "thermoplastic polymer" and thus, one of ordinary skill in the art would have arrived at the claimed invention.

With respect to (2), the polymer would have intrinsically been heated to the melting point because the composition is adhered to the cords or coated on various substrates and would have been in an at least somewhat liquid state in order to do so. Therefore it would have been obvious to one of ordinary skill in the art that the polymer at some point during the processing was melted.

7. Claims 1-42, 45-54, and 57-58 are directed to an invention not patentably distinct from claims 1-52 of commonly assigned US 6,969,737. Specifically, although the conflicting claims are not identical, they are not patentably distinct for the reasons set forth in paragraph 6 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned US 6,969,737 discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned

at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

*Double Patenting, III*

8. Claims 1-42, 45-54, and 57-58 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-46 of US Patent 6,884,832. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

US 6,884,832 discloses a composition comprising rubber, adhesive resin, and esters of the formulae in claim 1. The adhesive resin is further specified using the formulae in the dependent claims.

The differences between the present claims and the claims of US 6,858,664 are (1) the present claims refer to "thermoplastic polymers" or "thermoplastic polymer alloys" while the claims of US 6,884,832 refer to "rubber", (2) the claims of US 6,884,832 do not refer to calcium silicate, and (3) the claims of US 6,884,832 do not disclose that the temperature is sufficient to melt the polymer.

Applicant's attention is drawn to M.P.E.P. § 804 where it is disclosed that "the specification can always be used as a dictionary to learn the meaning of a term in a

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patent claim.” *In re Boylan*, 392 F. 2d 1017, 157 USPQ 370 (CCPA 1968). Further, those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in the patent. *In re Vogel*, 422 F. 2d 438, 164 USPQ 619, 622 (CCPA 1970).

With respect to (1), the specification of US 6,884,832 discloses that rubbers include styrene-butadiene rubbers (col 10, lines 21-67). Applicant’s present specification defines styrene-butadiene copolymers as “thermoplastic polymers” (page 21-22), therefore it would have been obvious that the rubber in the claims of US 6,884,832 would have included overlapping compounds with the presently claimed “thermoplastic polymer” and thus, one of ordinary skill in the art would have arrived at the claimed invention.

With respect to (2), the specification of US 6,884,832 also discloses calcium silicate as a component in the examples (col 19, lines 10-17). It would have been obvious to one of ordinary skill in the art that calcium silicate was an additional component of the given composition because calcium silicate is a carrier used in the compositions in the examples.

With respect to (3), the polymer would have intrinsically been heated to the melting point because the composition is adhered to the cords or coated on various substrates and would have been in an at least somewhat liquid state in order to do so. Therefore it would have been obvious to one of ordinary skill in the art that the polymer at some point during the processing was melted.

9. Claims 1-42, 45-54, and 57-58 are directed to an invention not patentably distinct from claims 1-46 of commonly assigned US 6,884,832. Specifically, although the conflicting claims are not identical, they are not patentably distinct for the reasons set forth in paragraph 8 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned US 6,884,832 discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

*Double Patenting, IV*

10. Claims 1-58 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-48 of copending US Application No. 10/706,386. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

US Application No. 10/706,386 discloses a composition comprising vulcanized rubber, adhesive resin, and esters of the formulae in claim 1. The adhesive resin is further specified using the formulae in the dependent claims.

The differences between the present claims and the claims of 10/706,386 are (1) the present claims refer to "thermoplastic polymers" or "thermoplastic polymer alloys" while the claims of 10/706,386 refer to "rubber", (2) the claims of 10/706,386 do not refer to calcium silicate, and (3) the claims of 10/706,386 do not disclose that the temperature is sufficient to melt the polymer.

Applicant's attention is drawn to M.P.E.P. § 804 where it is disclosed that "the specification can always be used as a dictionary to learn the meaning of a term in a patent claim." *In re Boylan*, 392 F. 2d 1017, 157 USPQ 370 (CCPA 1968). Further, those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in the patent. *In re Vogel*, 422 F. 2d 438, 164 USPQ 619, 622 (CCPA 1970).

With respect to (1), the specification of 10/706,386 discloses that rubbers include styrene-butadiene rubbers (para 15-16). Applicant's present specification defines

styrene-butadiene copolymers as “thermoplastic polymers” (page 21-22), therefore it would have been obvious that the rubber in the claims of 10/706,386 would have included overlapping compounds with the presently claimed “thermoplastic polymer” and thus, one of ordinary skill in the art would have arrived at the claimed invention.

With respect to (2), the specification of 10/706,386 also discloses that typically, adhesion promoters are mixed with a dry carrier, such as calcium silicate, to form an alternative delivery system, which can be incorporated into natural and/or synthetic rubber (para 25). It would have been obvious to one of ordinary skill in the art that calcium silicate was an additional component of the given composition because calcium silicate is a typical carrier used in the compositions in the specification.

With respect to (3), the polymer would have intrinsically been heated to the melting point because the composition is adhered to the cords or coated on various substrates and would have been in an at least somewhat liquid state in order to do so. Therefore it would have been obvious to one of ordinary skill in the art that the polymer at some point during the processing was melted.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

11. Claims 1-58 are directed to an invention not patentably distinct from claims 1-48 of commonly assigned copending US Application No. 10/706,386. Specifically, although the conflicting claims are not identical, they are not patentably distinct for the reasons set forth in paragraph 10 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned copending US Application No. 10/706,386, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

*Double Patenting, V*

12. Claims 1-44, 46-49, and 51-58 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-47, 49-54, 56-58, 62-69, 71-73, and 77-88 of copending US Application No. 10/718,233. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

US Application No. 10/718,233 discloses a sealant composition comprising a sealant, an adhesive resin, and esters of the formulae in claim 1. The adhesive resin is further specified using the formulae in the dependent claims.

The differences between the present claims and the claims of 10/718,233 are (1) the present claims refer to "thermoplastic polymers" or "thermoplastic polymer alloys" while the claims of 10/718,233 refer to "a sealant", and (2) the claims of 10/718,233 do not disclose that the temperature is sufficient to melt the polymer.

Applicant's attention is drawn to M.P.E.P. § 804 where it is disclosed that "the specification can always be used as a dictionary to learn the meaning of a term in a patent claim." *In re Boylan*, 392 F. 2d 1017, 157 USPQ 370 (CCPA 1968). Further, those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in the patent. *In re Vogel*, 422 F. 2d 438, 164 USPQ 619, 622 (CCPA 1970).

With respect to (1), the specification of 10/718,233 discloses that sealant material includes acrylics (para 14) and is in dependent claim 50. Applicant's present specification defines acrylic resins as "thermoplastic polymers" (page 21), therefore it would have been obvious that the sealant in the claims of 10/718,233 would have included overlapping compounds with the presently claimed "thermoplastic polymer" and thus, one of ordinary skill in the art would have arrived at the claimed invention.

With respect to (2), the sealant would have intrinsically been heated to the melting point because the sealant is adhered to various substrates and would have



been in an at least somewhat liquid state in order to do so. Furthermore, claim 67 discloses that the mixture is heated to 50-200°C, which would have been enough to melt the composition. Therefore it would have been obvious to one of ordinary skill in the art that the polymer at some point during the processing was melted.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

13. Claims 1-44, 46-49, and 51-58 are directed to an invention not patentably distinct from claims 1-47, 49-54, 56-58, 62-69, 71-73, and 77-88 of commonly assigned copending US Application No. 10/718,233. Specifically, although the conflicting claims are not identical, they are not patentably distinct for the reasons set forth in paragraph 12 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned copending US Application No. 10/718,233, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions

were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 6-22, 44, and 49-58 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 6, 14-17, and 21 recite "derivatives" which is indefinite since metes and bounds of coverage sought by applicant are unclear.

Claim 18 recites the limitation "the vulcanizable rubber composition." There is insufficient antecedent basis for this limitation in the claim.

Claim 44 recites the limitation "the reactive diluent". There is insufficient antecedent basis for this limitation in the claim.

Claims 49, 53, 55, and 57 recite "an ester having formula I, II, III, IV or mixtures" but there are no formulae labeled as such in the claim and therefore is unclear what is being referred to.

Claims 7-13, 19, 20, 22, 50-52, 54, 56, and 58 are rejected under 35 U.S.C. 112, second paragraph, as being dependent upon a rejected base claim.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claims 1-4, 41, 42, 49, 51-53, 57, and 58 are rejected under 35 U.S.C. 102(b) as being anticipated by Sanderson et al (US 4,077,926).

Sanderson discloses a pressure sensitive adhesive with improved shear resistance and good tackiness (abstract). The composition includes polyfunctional compounds such as phenol-formaldehyde, melamine-formaldehyde, and alkylated melamine-formaldehyde resins that are present in amounts from 0.1-10%. The optional “soft” and “hard” tackifying monomer meet the requirement of the ester of formula 1 in the present claims (col 3-4). In one embodiment the soft ester is present in at least 10% (col 2, lines 4-13). The hard ester can be present in amounts less than 25% (col 4, lines 51-53). Sanderson discloses that pressure sensitive adhesives from acrylic monomers have almost universally contained esters of acrylic acid as a tackifying resin, and an acrylic polymer is used in the example (col 1, lines 40-42; col 6). Acrylic resins are defined as thermoplastic in applicant’s current disclose (pg 21). The adhesive composition can be used fiber sheets, metal sheets, fibers of polymeric materials, and

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such (col 5, lines 16-44). The composition can be an emulsion in water (col 6, lines 9-15). Wollastonite (a natural calcium silicate) is disclosed as a filler (col 5, lines 6-11).

Therefore, Sanderson anticipates the presently cited claims.

### ***Claim Rejections - 35 USC § 103***

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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17. Claims 1-4, 6-8, 10, 13, 14, 18-22, 24, 34, 39, 41, 42, 45-50, 53, 57, 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Sidocky et al (US 5,985,963) in view of Oshiyama et al (US 4,789,381).

D'Sidocky discloses rubber compositions that exhibit good adhesion properties to aramid reinforcements in the tire (abstract, col 1, lines 5-15). The composition comprises natural and synthetic rubbers (col 2, lines 61-67; col 3, lines 1-43). Among the listed rubbers, there are such rubbers as polyvinyl chloride (defined by applicant as "thermoplastic" (pg 21-22)), and other rubbers such as polyisoprene (defined by applicant as a "rubber").

The composition comprises an adhesive resin that is a condensate of methylene donor and acceptor. Acceptors include phenolic resins such as novolak and donor comprises amine such as melamines having formula IV which correspond to the presently claimed (col 7). Methylene donor is present from 0.1-10 phr (col 7, lines 47-51) and can be N-substituted oxymethylmelamines (col 7, lines 20-40). Additionally, Table 1 discloses methylene ester of rosin wherein rosin has 19 carbon atoms. Although ester of rosin is disclosed as a tackifier, its adhesive properties are intrinsic to the compound since tackifiers have adhesive properties. Fillers include calcium silicate (col 3, lines 57-65). The composition is heated and mixed (col 8, lines 43-67) and thus is in a melted state.

D'Sidocky does not disclose esters that meet the requirements of the formulae in the present claims.

Oshiyama discloses a fiber treating process for which is suitable for tire cords (abstract; col 4, lines 16-22). The fiber is pretreated with ester that is the reaction product of polybasic carboxylic acid and alcohol of formula 1 (abstract; col 2). The repetitive units (AO) is zero in the examples of alcohols given in Table 1. Furthermore, Oshiyama discloses polybasic acids including adipic and sebacic acid (col 1, lines 40-45). Thus, the formulae in Table 1 satisfy the esters in formula 1-2 of the present invention.

The composition of Oshiyama uses esters to pre-treat the fibers that are later used in tire cords. It is well settled that it is prima facie obvious to combine two ingredients, each of which is targeted by the prior art to be useful for the same purpose. *In re Lindner* 457 F.2d 506,509, 173 USPQ 356, 359 (CCPA 1972).

In light of the above, it would have been obvious to one of ordinary skill in the art to use the esters of Oshiyama in the composition disclosed by D'Sidocky and thereby obtained the presently cited claims. Use of the esters of Oshiyama would still provide a composition having good adhesion properties to the tire cords.

18. Claims 5 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Sidocky in view of Oshiyama as applied to claims 1-4, 6-8, 10, 13, 14, 18-22, 24, 34, 39, 41, 42, 45-50, 53, 57, 58 above, and further in view of Solomon (US 4,448,813).

The discussion with respect to the disclosures of D'Sidocky and Oshiyama in paragraph 16 above is incorporated herein by reference.

D'Sidocky and Oshiyama do not disclose the use of resorcinol-formaldehyde resins.

Solomon discloses adhesive activated polyester cord, or an aramid cord, treated with polyisocyanate, a resorcinol-formaldehyde condensate, a rubber latex, and an acrylic resin (col 3, lines 63-68). Solomon discloses the use of melamines and resorcinol formaldehyde resin wherein the condensation product is an adhesive resin.

It would have been obvious to one of ordinary skill in the art to additionally use resorcinol formaldehyde resin as the adhesive resin because Solomon discloses that the resin is beneficial to the process of making tires that are made with cords treated with resorcinol-formaldehyde resin.

19. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sanderson et al (US 4,077,926) in view of Solomon (US 4,448,813).

The discussion with respect to Sanderson in paragraph 15 above is incorporated herein by reference.

Sanderson does not disclose use of resorcinol-formaldehyde resins.

Solomon discloses adhesive activated polyester cord, or an aramid cord, treated with polyisocyanate, a resorcinol-formaldehyde condensate, a rubber latex, and an acrylic resin (col 3, lines 63-68). Solomon discloses the use of melamines and resorcinol formaldehyde resin wherein the condensation product is an adhesive resin (col 6, lines 36-51).

It would have been obvious to one of ordinary skill in the art to use resorcinol formaldehyde resin as a specific type of phenol-formaldehyde broadly disclosed by Sanderson. One would have a reasonable expectation of success in combining the references because both compositions are used on fibers and comprise acrylic resins and phenol-formaldehyde type resins.

20. Claims 6-22, 45, and 50 rejected under 35 U.S.C. 103(a) as being unpatentable over Sanderson et al (US 4,077,926) in view of Singh et al (US 5,298,539).

The discussion with respect to Sanderson in paragraph 15 above is incorporated herein by reference.

Sanderson does not disclose specific derivatives of melamine or use as a composition for cords used in tires.

Singh discloses additives for improving tire cord adhesion and toughness of rubber compositions using derivatives of melamine, acetoguanamine, and benzoguanamine (abstract). Melamine based derivatives and glycoluril oligomers have the formulae give in columns 2-3. The adhesion promoter additives are present in the range of 0.2 to 10 phr (col 4, lines 8-11).

It would have been obvious to use the adhesion promoters disclosed by Singh in the composition of Sanderson to increase the adhesion properties of the composition to the fiber and fabric. It also would have been obvious to use the composition for cord adhesion because Singh discloses that the additives are useful as such. One would



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expect success in the combination because Sanderson already discloses melamine resins in the composition.

21. Claims 43, 44, 55, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanderson et al (US 4,077,926) in view of Huynh-Tran et al (US 2003/0166743).

The discussion with respect to Sanderson in paragraph 15 above is incorporated herein by reference.

Sanderson does not disclose reactive diluents such as glycidyl ether in his composition.

Huynh-Tran discloses an adhesive system for good bonding between polyester tire cords and rubber compounds that contain resorcinol-formaldehyde latex (para 4-5) or hexamethylenetetramine and resorcinol/phenol type resins (para 10). Surface modification agents such as glycidyl ether promote the adhesion properties of the cords and tire and are present from about 0.1 to 10 phr (para 30). N-substituted oxymethyl melamines and derivatives or triazine resins may also be used (para 33).

It would have been obvious to use the surface modification agents disclosed by Huynh-Tran in the composition of Sanderson to increase the adhesion properties of the composition. One would expect success in the combination because both references teach adhesive compositions that include melamines and phenol resins.

### ***Conclusion***

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22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Leo et al (US 4,263,184) discloses a composition is used as a reinforcement and in synthetic cord and fabric to increase modulus and tensile strength in tires comprised of rubbers or plastics such as polyvinyl chloride with plasticizers including esters of sebacic and adipic acids. Adhesion promoters can be added to the mixture to enhance adhesion between the fibrous material and rubber or plastic compound such as resorcinol-formaldehyde.

Wentworth et al (US 2004/0127616) PG-Publication of application 10/706,386.

Klosowski et al (US 2004/0122145) PG-Publication of application 10/718,233.

Marhevka et al (US 5712039) discloses reactive diluents with epoxy adhesives.

Hopper et al (US 5,777,014) discloses a PVC resin composition with diacid plasticizers in amounts greater than 20 phr.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sandra K. Poulos whose telephone number is (571) 272-6428. The examiner can normally be reached on M-F 7:30-4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SKP

Sandra K. Poulos

2/14/2004

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